

LISTING OF CLAIMS

This listing of claims will replace all prior versions and listings of claims in the Application.

1.-8. (Cancelled)

9. (New) An organic electro-luminescence display device comprising:

an optically transparent substrate;

first pixels formed over the optically transparent substrate, each of the first pixels including a first organic electro-luminescence element which includes a first optically transparent and electrically conductive layer, an organic layer including a light-emitting layer, a second optically transparent and electrically conductive layer, and a first optically reflective and electrically conductive layer in order,

the organic layer configured to transform electric energy applied between the first optically transparent and electrically conductive layer and the second optically transparent and electrically conductive layer into light,

the first optically reflective and electrically conductive layer configured to reflect light, and

the first pixel configured to emit light towards a first surface of the organic electro-luminescence display device; and

second pixels formed over the optically transparent substrate, each of the second pixels including a second organic electro-luminescence element which includes a second optically reflective and electrically conductive layer, the first optically transparent and electrically conductive layer, the organic layer including the light-emitting layer, and the second optically transparent and electrically conductive layer in order,

the second optically reflective and electrically conductive layer configured to reflect light, and

the second pixel configured to emit light towards a second surface of the organic electro-luminescence display device, the second surface being opposite to the first surface.

10. (New) The organic electro-luminescence display device according to Claim 9, further comprising:

a first selection switch and a first control element disposed in the first pixel, the first selection switch selecting the first pixel, and the first control element controlling electrical current supplied to the first organic electro-luminescence element; and

a second selection switch and a second control element disposed in the second pixel, the second selection switch selecting the second pixel, and the second control element controlling electrical current supplied to the second organic electro-luminescence element.

11. (New) The organic electro-luminescence display device according to Claim 10, wherein

each of the first selection switch, the first control element, the second selection switch and the second control element is constituted with a thin film transistor.

12. (New) The organic electro-luminescence display device according to Claim 10, further comprising:

an undercoat layer formed on the optically transparent substrate, the first selection switch, the first control element, the second selection switch and the second control element being formed on the undercoat layer;

a passivation layer covering the first selection switch, the first control element, the second selection switch and the second control element, and the first organic electro-luminescence element and the second organic electro-luminescence element being on the passivation layer; and

a partition insulation later formed on the passivation layer, the partition insulation later isolating between the first organic electro-luminescence element and the second organic electro-luminescence element.

13. (New) The organic electro-luminescence display device according to Claim 12, wherein

the undercoat layer is laminated with silicon nitride and silicon oxide in order.

14. (New) The organic electro-luminescence display device according to Claim 12, wherein

the partition insulation later is laminated with a hydrophilic layer and a water repellent layer in order.

15. (New) The organic electro-luminescence display device according to Claim 9, wherein

a hole injection layer is included in the organic layer and is formed between the light-emitting layer and the first optically transparent and electrically conductive layer.

16. (New) The organic electro-luminescence display device according to Claim 15, wherein

a composition containing donor and acceptor constitutes the hole injection layer.

17. (New) The organic electro-luminescence display device according to Claim 16, wherein

the composition containing donor and acceptor contains at least one of a polythiophene derivative such as polyethylene dioxithiophene, a polyaniline derivative such as polyaniline or a polystyrene sulfonic acid.

18. (New) The organic electro-luminescence display device according to Claim 9, wherein

the light-emitting layer is constituted with at least one of a polymer compound having an alkyl or alkoxy substituent in a benzene ring of a polyvinylene styrene derivative, a polymer compound having vinylene or cyano group of a polyvinylene styrene derivative a polyvinylene styrene derivative introducing an alkyl, alkoxy or allylic derivative substituent into its benzene ring or a polyfluorene derivative such as a copolymer of dialkylfluorene and althracen.

19. (New) Electronic equipment comprising:

an organic electro-luminescence display device as set forth in Claim 9; and

an input manipulator to input signals to the organic electro-luminescence display device,

wherein the organic electro-luminescence display device displays images in response to the input.

20. (New) An organic electro-luminescence display device comprising:

an optically transparent substrate;

first pixels formed over the optically transparent substrate, the first pixels being disposed in a first direction, each of the first pixels including a first organic electro-luminescence element, a first selection switch, and a first control element, the first selection switch selecting the first pixel, the first control element controlling electrical current supplied to the first organic electro-luminescence element;

second pixels formed over the optically transparent substrate, the second pixels being disposed in the first direction, each of the second pixels including a second organic electro-luminescence element, a second selection switch and a second control element, the second selection switch selecting the second pixel, the second control element controlling electrical current supplied to the second organic electro-luminescence element; and

electrode lines disposed in the first line, each of the electrode line being interposed between the first control element and the second control element, the electrode line being commonly connected to the first organic electro-luminescence element via the first control element and the second organic electro-luminescence element via the second control element;

wherein the first organic electro-luminescence element includes a first optically transparent and electrically conductive layer, an organic layer including a light-emitting layer, a second optically transparent and electrically conductive layer and a first optically reflective and electrically conductive layer in order,

the organic layer configured to transform electric energy applied between the first optically transparent and electrically conductive layer and the second optically transparent and electrically conductive layer into light,

the first optically reflective and electrically conductive layer configured to reflect light, and the first pixel configured to emit light towards a first surface of the organic electro-luminescence display device,

the second organic electro-luminescence element is laminated with a second optically reflective and electrically conductive layer, the first optically transparent and electrically conductive layer, the organic layer including the light-emitting layer and the second optically transparent and electrically conductive layer in order, and

the second optically reflective and electrically conductive layer configured to reflect light, and the second pixel configured to emit light towards a second surface of the organic electro-luminescence display device, the second surface being opposite to the first surface.

21. (New) The organic electro-luminescence display device according to Claim 20, wherein

the electrode line is interposed between the first organic electro-luminescence element and the second organic electro-luminescence element; and

the first selection switch and the first control element are disposed in a first region being different to the first organic electro-luminescence element in plane and the second selection switch and the second control element are disposed in a second region being different to the second organic electro-luminescence element in plane.

22. (New) The organic electro-luminescence display device according to Claim 20, wherein

at least one of a portion of the first selection switch, a portion of the first control element, a portion of the second selection switch or a portion of the second control element is overlapped with the second organic electro-luminescence element in plane.

23. (New) The organic electro-luminescence display device according to Claim 20, further comprising:

scanning lines disposed in the first direction over the optically transparent substrate;
and

first video signal lines and second video signal lines disposed in the second direction over the optically transparent substrate;

wherein the first selection switch supply video signals from the first video signal lines between the first optically transparent and electrically conductive layer and the second optically transparent and electrically conductive layer into light in response to scanning signals from the scanning lines, and the second selection switch supply video signals from the second video signal lines between the first optically transparent and electrically conductive layer and the second optically transparent and electrically conductive layer into light in response to scanning signals from the scanning lines.

24. (New) Electronic equipment comprising:

an organic electro-luminescence display device as set forth in Claim 20; and

an input manipulator to input signals to the organic electro-luminescence display device,

wherein the organic electro-luminescence display device displays images in response to the input.

25. (New) An organic electro-luminescence display device comprising:

an optically transparent substrate;

first pixels formed over the optically transparent substrate, the first pixels being disposed in a first direction, each of the first pixels including a first organic electro-luminescence element, a first selection switch, a first control element, and a first capacitor, the first selection switch selecting the first pixel, the first control element controlling electrical current supplied to the first organic electro-luminescence element and the first capacitor retaining gate voltage applied to the first control element;

second pixels formed over the optically transparent substrate, the second pixels being disposed in the first direction, each of the second pixels including a second organic electro-luminescence element, a second selection switch, a second control element, and a second capacitor, the second selection switch selecting the second pixel, the second control element controlling electrical current supplied to the second organic electro-luminescence element and the second capacitor retaining gate voltage of the second control element; and

electrode lines disposed in the second line, each of the electrode line being commonly connected to the first organic electro-luminescence element via the first control element and the second organic electro-luminescence element via the second control element;

wherein the first organic electro-luminescence element includes a first optically transparent and electrically conductive layer, an organic layer including a light-emitting layer, a second optically transparent and electrically conductive layer and a first optically reflective and electrically conductive layer in order,

the organic layer configured to transform electric energy applied between the first optically transparent and electrically conductive layer and the second optically transparent and electrically conductive layer into light,

the first optically reflective and electrically conductive layer configured to reflect light, and the first pixel configured to emit light towards a first surface of the organic electro-luminescence display device,

the second organic electro-luminescence element includes a second optically reflective and electrically conductive layer, the first optically transparent and electrically conductive layer, the organic layer including the light-emitting layer and the second optically transparent and electrically conductive layer in order, and

the second optically reflective and electrically conductive layer configured to reflect light, and the second pixel configured to emit light towards a second surface of the organic electro-luminescence display device, the second surface being opposite to the first surface.

26. (New) The organic electro-luminescence display device according to Claim 25, wherein

the first selection switch and the first control element are disposed in a first region being different to the first organic electro-luminescence element in plane and the second selection switch and the second control element are disposed in a second region being different to the second organic electro-luminescence element in plane.

27. (New) The organic electro-luminescence display device according to Claim 25, wherein

at least one of a portion of the first selection switch, a portion of the first control element, a portion of the second selection switch or a portion of the second control element is overlapped with the second organic electro-luminescence element in plane.

28. (New) Electronic equipment comprising:
an organic electro-luminescence display device as set forth in Claim 25; and
an input manipulator to input signals to the organic electro-luminescence display device,
wherein the organic electro-luminescence display device displays images in response to the input.